

INDEX

	PAGE
<i>Adler, Joel E. M., Salisbury, John W. and Smalley, Vern G., Dark-haloed craters on the Moon</i>	245
 Astronomical instruments:	
— A new technique for stellar polarimetry, <i>P. J. Treanor, S. J.</i> ...	325
 Astrophysics:	
— The atmosphere of the long period cepheid 1 Carinae—I. Curve of growth analysis and hydrogen line profiles, <i>A. W. Rodgers and R. A. Bell</i> ...	23
— Non-coherent scattering—III. The effect of continuous absorption on the formation of spectral lines, <i>D. G. Hummer</i> ...	73
— A revised spectral classification system and a new catalogue for galactic Wolf-Rayet stars, <i>Lindsey F. Smith</i> ...	109
— Adiabatic pulsations and convective instability of gaseous masses—III, <i>Jean Louis Tassoul</i> ...	123
— The free-free transitions of He ⁺ , <i>T. L. John</i> ...	137
— The abundances of the elements in the solar photosphere—I. Carbon, nitrogen and oxygen, <i>D. L. Lambert</i> ...	143
— The abundances of the elements in the solar photosphere—II. Sodium, aluminium, phosphorous, sulphur and potassium, <i>D. L. Lambert and B. Warner</i> ...	181
— The abundances of the elements in the solar photosphere—III. Silicon, <i>D. L. Lambert and B. Warner</i> ...	213
— The abundances of the elements in the solar photosphere—IV. The iron group, <i>Brian Warner</i> ...	229
— The effects of accretion on white dwarf stars, <i>William C. Saslaw</i> ...	337
— Magnetic braking by a stellar wind—I, <i>L. Mestel</i> ...	359
— The determination of the evolutionary properties of quasars by means of the luminosity-volume test, <i>M. Rowan-Robinson</i> ...	445
— The axisymmetric dynamo, <i>R. Jayanthan</i> ...	477
— The gravo-thermal catastrophe in isothermal spheres and the onset of red-giant structure for stellar systems, <i>D. Lynden-Bell and Roger Wood</i> ...	495
— The wavelength dependence of interstellar obscuration of Wolf-Rayet stars, <i>V. C. Reddish</i> ...	535
<i>Bailey, J. A. and Pooley, G. G., Fan-beam observations of radio sources at 408 and 1407 MHz</i>	51
<i>Bell, R. A. and Rodgers, A. W., The atmosphere of the long period cepheid 1 Carinae—I. Curve of growth analysis and hydrogen line profiles</i> ...	23
<i>Bridle, A. H., The non-thermal emissivity of the galactic disk near $l\text{II} = 140^\circ$</i> ...	251
<i>Brown, F. G., The forms and position angles of 4287 galaxies in Hydra, Ursa Major, Virgo and Eridanus</i> ...	527
<i>Chambliss, C. R., The Delta Scuti star HD 116994</i> ...	437
 Extragalactic systems:	
— The radio emission from galaxies in the Perseus cluster, <i>M. Ryle and M. D. Windram</i> ...	1
— The forms and position angles of 4287 galaxies in Hydra, Ursa Major, Virgo and Eridanus, <i>F. G. Brown</i> ...	527
 Galactic structure:	
— The non-thermal emissivity of the galactic disk near $l\text{II} = 140^\circ$, <i>A. H. Bridle</i> ...	251
<i>Hewish, A., and Little, L. T., Radio source structure derived from interplanetary scintillation</i>	393
<i>Hummer, D. G., Non-coherent scattering—III. The effect of continuous absorption on the formation of spectral lines</i> ...	73
 Interstellar matter:	
— The wavelength dependence of interstellar obscuration of Wolf-Rayet stars, <i>V. C. Reddish</i> ...	535
<i>Jayanthan, R., The axisymmetric dynamo</i> ...	477
<i>John, T. L., The free-free transitions of He⁺</i> ...	137

INDEX

	PAGE
<i>Adler, Joel E. M., Salisbury, John W. and Smalley, Vern G., Dark-haloed craters on the Moon</i>	245
 Astronomical instruments:	
— A new technique for stellar polarimetry, <i>P. J. Treanor, S. J.</i> ...	325
 Astrophysics:	
— The atmosphere of the long period cepheid 1 Carinae—I. Curve of growth analysis and hydrogen line profiles, <i>A. W. Rodgers and R. A. Bell</i> ...	23
— Non-coherent scattering—III. The effect of continuous absorption on the formation of spectral lines, <i>D. G. Hummer</i> ...	73
— A revised spectral classification system and a new catalogue for galactic Wolf-Rayet stars, <i>Lindsey F. Smith</i> ...	109
— Adiabatic pulsations and convective instability of gaseous masses—III, <i>Jean Louis Tassoul</i> ...	123
— The free-free transitions of He ⁺ , <i>T. L. John</i> ...	137
— The abundances of the elements in the solar photosphere—I. Carbon, nitrogen and oxygen, <i>D. L. Lambert</i> ...	143
— The abundances of the elements in the solar photosphere—II. Sodium, aluminium, phosphorous, sulphur and potassium, <i>D. L. Lambert and B. Warner</i> ...	181
— The abundances of the elements in the solar photosphere—III. Silicon, <i>D. L. Lambert and B. Warner</i> ...	213
— The abundances of the elements in the solar photosphere—IV. The iron group, <i>Brian Warner</i> ...	229
— The effects of accretion on white dwarf stars, <i>William C. Saslaw</i> ...	337
— Magnetic braking by a stellar wind—I, <i>L. Mestel</i> ...	359
— The determination of the evolutionary properties of quasars by means of the luminosity-volume test, <i>M. Rowan-Robinson</i> ...	445
— The axisymmetric dynamo, <i>R. Jayanthan</i> ...	477
— The gravo-thermal catastrophe in isothermal spheres and the onset of red-giant structure for stellar systems, <i>D. Lynden-Bell and Roger Wood</i> ...	495
— The wavelength dependence of interstellar obscuration of Wolf-Rayet stars, <i>V. C. Reddish</i> ...	535
<i>Bailey, J. A. and Pooley, G. G., Fan-beam observations of radio sources at 408 and 1407 MHz</i>	51
<i>Bell, R. A. and Rodgers, A. W., The atmosphere of the long period cepheid 1 Carinae—I. Curve of growth analysis and hydrogen line profiles</i> ...	23
<i>Bridle, A. H., The non-thermal emissivity of the galactic disk near $l\text{II} = 140^\circ$</i> ...	251
<i>Brown, F. G., The forms and position angles of 4287 galaxies in Hydra, Ursa Major, Virgo and Eridanus</i> ...	527
<i>Chambliss, C. R., The Delta Scuti star HD 116994</i> ...	437
 Extragalactic systems:	
— The radio emission from galaxies in the Perseus cluster, <i>M. Ryle and M. D. Windram</i> ...	1
— The forms and position angles of 4287 galaxies in Hydra, Ursa Major, Virgo and Eridanus, <i>F. G. Brown</i> ...	527
 Galactic structure:	
— The non-thermal emissivity of the galactic disk near $l\text{II} = 140^\circ$, <i>A. H. Bridle</i> ...	251
<i>Hewish, A., and Little, L. T., Radio source structure derived from interplanetary scintillation</i>	393
<i>Hummer, D. G., Non-coherent scattering—III. The effect of continuous absorption on the formation of spectral lines</i> ...	73
 Interstellar matter:	
— The wavelength dependence of interstellar obscuration of Wolf-Rayet stars, <i>V. C. Reddish</i> ...	535
<i>Jayanthan, R., The axisymmetric dynamo</i> ...	477
<i>John, T. L., The free-free transitions of He⁺</i> ...	137

<i>Kenderdine, S., Macdonald, G. H. and Neville, Ann C.</i> , Observations of the structure of radio sources in the 3C catalogue—I	259
<i>Lambert, D. L.</i> , The abundances of the elements in the solar photosphere—I. Carbon, nitrogen and oxygen	143
<i>Lambert, D. L. and Warner, B.</i> , The abundances of the elements in the solar photosphere—II. Sodium, aluminium, phosphorous, sulphur and potassium	181
<i>Lambert, D. L. and Warner, B.</i> , The abundances of the elements in the solar photosphere—III. Silicon	213
<i>Little, L. T. and Hewish, A.</i> , Radio source structure derived from interplanetary scintillation	393
<i>Lynden-Bell, D. and Wood, Roger</i> , The gravo-thermal catastrophe in isothermal spheres and the onset of red-giant structure for stellar systems	495
<i>Macdonald, G. H., Kenderdine, S. and Neville, Ann C.</i> , Observations of the structure of radio sources in the 3C catalogue—I	259
<i>McIntosh, C. B. G.</i> , Cosmological models with both radiation and matter	423
<i>Mestel, L.</i> , Magnetic braking by a stellar wind—I	359
Moon:	
— Dark-haloed craters on the Moon, <i>Salisbury, John W., Adler, E. M. and Smalley, Vern G.</i>	245
<i>Neville, Ann C., Macdonald, G. H. and Kenderdine, S.</i> , Observations of the structure of radio sources in the 3C catalogue—I	259
<i>Page, C. and Tupper, B. O. J.</i> , Scalar gravitational theories with variable velocity of light	67
<i>Parker, E. A.</i> , Precise measurements of the flux densities of the radio sources Cas A and Cyg A at metre wavelengths	407
<i>Pooley, G. G. and Bailey, J. A.</i> , Fan-beam observations of radio sources at 408 and 1407 MHz	51
Radio astronomy:	
— The radio emission from galaxies in the Perseus cluster, <i>M. Ryle and M. D. Windram</i>	1
— Fan-beam observations of radio sources at 408 and 1407 MHz, <i>J. A. Bailey and G. G. Pooley</i>	51
— The non-thermal emissivity of the galactic disk near $b^{\text{II}} = 140^{\circ}$, <i>A. H. Bridle</i>	251
— Observations of the structure of radio sources in the 3C catalogue—I, <i>G. H. Macdonald, S. Kenderdine and Ann C. Neville</i>	259
— Radio source structure derived from interplanetary scintillation, <i>L. T. Little and E. Hewish</i>	393
— Precise measurement of the flux densities of the radio sources Cas A and Cyg A at metre wavelengths, <i>E. A. Parker</i>	407
<i>Reddish, V. C.</i> , The wavelength dependence of interstellar obscuration of Wolf-Rayet stars	535
<i>Rodgers, A. W. and Bell, R. A.</i> , The atmosphere of the long period cepheid 1 Carinae—I. Curve of growth analysis and hydrogen line profiles	23
<i>Rowan-Robinson, M.</i> , The determination of the evolutionary properties of quasars by means of the luminosity-volume test	445
<i>Ryle, M. and Windram, M. D.</i> , The radio emission from galaxies in the Perseus cluster	1
<i>Salisbury, John W., Adler, Joel E. M. and Smalley, Vern G.</i> , Dark-haloed craters on the Moon	245
<i>Sasiw, William C.</i> , The effects of accretion on white dwarf stars	337
<i>Smith, Lindsey F.</i> , A revised spectral classification system and a new catalogue for galactic Wolf-Rayet stars	109
<i>Smalley, Vern G., Salisbury, John W. and Adler, Joel E. M.</i> , Dark-haloed craters on the Moon	245
Solar spectroscopy:	
— The abundances of the elements in the solar photosphere—I. Carbon, nitrogen and oxygen, <i>D. L. Lambert</i>	143
— The abundances of the elements in the solar photosphere—II. Sodium, aluminium, phosphorous, sulphur and potassium, <i>D. L. Lambert and B. Warner</i>	181
— The abundances of the elements in the solar photosphere—III. Silicon, <i>D. L. Lambert and B. Warner</i>	213
— The abundances of the elements in the solar photosphere—IV. The iron group, <i>Brian Warner</i>	229
<i>Stabell, Rolf</i> , Cosmological models with pressure	313
Stars—spectra of:	
— The atmosphere of the long period cepheid 1 Carinae—I. Curve of growth analysis and hydrogen line profiles, <i>A. W. Rodgers and R. A. Bell</i>	23
— A revised spectral classification system and a new catalogue for galactic Wolf-Rayet stars, <i>Lindsey F. Smith</i>	109
— The Delta Scuti star HD 116994, <i>C. R. Chambliss</i>	437

Stars—structure of:

— Adiabatic pulsations and convective instability of gaseous masses—III, <i>Jean Louis Tassoul</i> ...	123
— The effects of accretion on white dwarf stars, <i>William C. Saslaw</i> ...	337
— Magnetic braking by a stellar wind—I, <i>L. Mestel</i> ...	359
— The gravo-thermal catastrophe in isothermal spheres and the onset of red-giant structure for stellar systems, <i>D. Lynden-Bell and Roger Wood</i> ...	495
<i>Tassoul, Jean Louis</i> , Adiabatic pulsations and convective instability of gaseous masses—III	123
<i>Treanor, P. J., S. J.</i> , A new technique for stellar polarimetry ...	325
<i>Tupper, B. O. J. and Page, C.</i> , Scalar gravitational theories with variable velocity of light ...	67

Universe—cosmology:

— Scalar gravitational theories with variable velocity of light, <i>C. Page and B. O. J. Tupper</i>	67
— Cosmological models with pressure, <i>Rolf Stabell</i>	313
— Cosmological models with both radiation and matter, <i>C. B. G. McIntosh</i>	423
— The determination of the evolutionary properties of quasars by means of the luminosity-volume test, <i>M. Rowan-Robinson</i>	445
Warner, <i>B.</i> and Lambert, <i>D. L.</i> , The abundances of the elements in the solar photosphere—II. Sodium, aluminium, phosphorous, sulphur and potassium	181
Warner, <i>B.</i> and Lambert, <i>D. L.</i> , The abundances of the elements in the solar photosphere—III. Silicon	213
Warner, <i>Brian</i> , The abundances of the elements in the solar photosphere—IV. The iron group	229
Windram, <i>M. D.</i> and Ryle, <i>M.</i> , The radio emission from galaxies in the Perseus cluster	1
Wood, <i>Roger</i> and Lynden-Bell, <i>D.</i> , The gravo-thermal catastrophe in isothermal spheres and the onset of red-giant structures for stellar systems	493



MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY

CONTAINING

PAPERS PUBLISHED IN THE PERIOD
 1968 MARCH TO 1968 JUNE

VOL. 139

Published for the Royal Astronomical Society by
 Blackwell Scientific Publications · Oxford and Edinburgh

INDEX

	PAGE
<i>Allen, C. W.</i> , Statistical spectra for stellar photospheric conditions	... ... ... ... 367
Astronomical Instruments:	
— Coma tolerances for photographic star images, <i>E. H. Linfoot and R. O. Redman</i>	... 347
Astrophysics:	
— Atomic oscillator strengths—I. Neutral silicon, <i>Brian Warner</i>	... ... ... ... 1
— Absorption lines of neutral silicon in the solar spectrum, <i>D. L. Lambert and B. Warner</i>	... ... ... ... 35
— Atomic oscillator strengths—II. Neutral magnesium, <i>Brian Warner</i>	... ... ... ... 103
— Atomic oscillator strengths—III. Alkali-like spectra, <i>Brian Warner</i>	... ... ... ... 115
— The excitation of spectrum lines in nebulae by resonant scattering of radiation from the central stars, <i>M. J. Seaton</i>	... ... ... ... 129
— Notes on applications of Fourier transform spectroscopy to studies of line profiles, <i>A. H. Cook</i>	... ... ... ... 141
— The radio-frequency spectrum of H_2^+ , <i>W. B. Somerville</i>	... ... ... ... 163
— The temperatures, metal abundance and mass of the disc cepheid \times Pavonis, <i>A. W. Rodgers and R. A. Bell</i>	... ... ... ... 175
— A new determination of the luminosity function, <i>W. J. Luyten</i>	... ... ... ... 221
— Line strengths in two-electron spectra, <i>Brian Warner</i>	... ... ... ... 273
— Statistical spectra for stellar photospheric conditions, <i>C. W. Allen</i>	... ... ... ... 367
<i>Bell, R. A. and Rodgers, A. W.</i> , The temperatures, metal abundance and mass of the disc cepheid \times Pavonis	... ... ... ... 175
<i>Branson, N. J. B.</i> , High resolution observations of the planet Jupiter	... ... ... ... 155
<i>Buscombe, W. and Kennedy, P. M.</i> , Stellar spectra in the cluster Messier 7	... ... ... ... 215
<i>Buscombe, W. and Kennedy, P. M.</i> , Stellar radial velocities from coudé spectrograms	... ... ... ... 341
<i>Buscombe, W. and Kennedy, P. M.</i> , Optical interstellar absorption features	... ... ... ... 417
<i>Candy, M. P. and Woolley, Sir Richard</i> , Perturbations of galactic orbits by irregularities in the gravitational field—I. Motion in the galactic plane	... ... ... ... 231
<i>Cawell, J. L., Williams, P. J. S., Collins, R. A. and Holden, D. J.</i> , The radio spectra of sources in the Fourth Cambridge Catalogue—III	... ... ... ... 289
Celestial mechanics and stellar dynamics:	
— A tensor virial-equation for stellar dynamics, <i>S. Chandrasekhar and Edward S. Lee</i>	... ... ... ... 135
— Perturbations of galactic orbits by irregularities in the gravitational field—I. Motion in the galactic plane, <i>Sir Richard Woolley and M. P. Candy</i>	... ... ... ... 231
<i>Chandrasekhar, S. and Lee, Edward S.</i> , A tensor virial-equation for stellar dynamics	... ... ... ... 135
<i>Collins, R. A., Williams, P. J. S., Caswell, J. L. and Holden, D. J.</i> , The radio spectra of sources in the Fourth Cambridge Catalogue—III	... ... ... ... 289
Comets:	
— On the distribution of major-axes of long-period comets, <i>R. A. Lyttleton</i>	... ... ... ... 225
<i>Cook, A. H.</i> , Notes on applications of Fourier transform spectroscopy to studies of line profiles	... ... ... ... 141
<i>Cross, C. A. and Fisher, D. L.</i> , The computer simulation of lunar craters	... ... ... ... 261
Extragalactic nebulae:	
— Photometry, kinematics and dynamics of the Magellanic-type barred spiral galaxy NGC 4027, <i>G. de Vaucouleurs, A. de Vaucouleurs and K. C. Freeman</i>	... ... ... ... 425
<i>Erratum</i>	... ... ... ... 414
<i>Fisher, D. L. and Cross, C. A.</i> , The computer simulation of lunar craters	... ... ... ... 261
<i>Freeman, K. C., Vaucouleurs, G. de and Vaucouleurs, A. de</i> , Photometry, kinematics and dynamics of the Magellanic-type barred spiral galaxy NGC 4027	... ... ... ... 425
Galactic nebulae:	
— The excitation of spectrum lines in nebulae by resonant scattering of radiation from the central stars, <i>M. J. Seaton</i>	... ... ... ... 129

Galactic structure:

— Perturbations of galactic orbits by irregularities in the gravitational field—I. Motion in the galactic plane, <i>Sir Richard Woolley and M. P. Candy</i>	231
<i>Holden, D. J., Williams, P. J. S., Collins, R. A. and Caswell, J. L.</i> , The radio spectra of sources in the Fourth Cambridge Catalogue—III	289

Interstellar matter:

— On the temperature of interstellar grains, *K. S. Krishna Swamy and N. C. Wickramasinghe*
 — Optical interstellar absorption features, *W. Buscombe and P. M. Kennedy*
 Jones, *D. H. P.*, Narrow band photometry of K and M stars
 283
 417
 186

Jupiter:

— High resolution observations of the planet Jupiter, <i>N. J. B. A. Branson</i>	...	...	155
<i>Kenderdine, S. and Pooley, G. G.</i> , The 5C2 survey of radio sources	...	...	529
<i>Kennedy, P. M. and Buscombe, W.</i> , Stellar spectra in the cluster Messier 7	...	...	215
<i>Kennedy, P. M. and Buscombe, W.</i> , Stellar radial velocities from coude spectrograms	...	...	341
<i>Kennedy, P. M. and Buscombe, W.</i> , Optical interstellar absorption features	...	...	417
<i>Krishna Swamy, K. S. and Wickramasinghe, N. C.</i> , On the temperature of interstellar grains	...	...	283
<i>Lambert, D. L. and Warner, B.</i> , Absorption lines of neutral silicon in the solar spectrum	...	...	35
<i>Lee, Edward S. and Chandrasekhar, S.</i> , A tensor virial-equation for stellar dynamics	...	...	135
<i>Le Marne, A. E.</i> , High resolution observations of the 30 Doradus Nebula at 408 MHz	...	...	461
<i>Linsfoot, E. H. and Redman, R. O.</i> , Comet tolerances for photographic star images	...	...	347
<i>Luyten, W. J.</i> , A new determination of the luminosity function	...	...	221
<i>Lytteleton, R. A.</i> , On the distribution of major-axes of long-period comets	...	...	223

Moon:

— The computer simulation of lunar craters, <i>C. A. Cross and D. L. Fisher</i>	26
— The nocturnal heat sources of the surface of the Moon, <i>R. L. Wildey</i>	47
<i>Peach, J. V.</i> , Low noise solar and laboratory spectroscopy—II. The region around 6708 Å in the photospheric spectrum and the solar lithium abundance	403
<i>Pooley, G. G. and Kenderdine, S.</i> , The 5C2 survey of radio sources ...	525
<i>Pooley, G. G. and Ryle, M.</i> , The extension of the number-flux density relation for radio sources to very small flux densities ...	51
<i>Przybylski, A.</i> , The analysis of the spectrum of the Large Magellanic Cloud supergiant HD 33579 ...	31

Radio astronomy:

— High resolution observations of the planet Jupiter, <i>N. J. B. A. Branson</i>	155
— The radio-frequency spectrum of He^+ , <i>W. B. Somerville</i>	163
— The radio spectra of sources in the Fourth Cambridge Catalogue—III, <i>P. J. S. Williams, R. A. Collins, J. L. Caswell and D. J. Holden</i>	289
— High resolution observations of the 30 Doradus Nebula at 408 MHz, <i>A. E. Le Marne</i>	461
— The extension of the number-flux density relation for radio sources to very small flux densities, <i>G. G. Pooley and M. Ryle</i>	515
— The 5C2 survey of radio sources, <i>G. G. Pooley and S. Kenderdine</i>	529
<i>Raju, P. K.</i> , Formation of solar prominences	479
<i>Redman, R. O. and Linfoot, E. H.</i> , Coma tolerances for photographic star images	347
<i>Rodgers, A. W. and Bell, R. A.</i> , The temperatures, metal abundance and mass of the disc cepheid π <i>Pavonis</i>	175
<i>Ryle, M. and Pooley, G. G.</i> , The extension of the number-flux density relation for radio sources to very small flux densities	515
<i>Seaton, M. J.</i> , The excitation of spectrum lines in nebulae by resonant scattering of radiation from the central stars	120

Solar physics:

— Formation of solar prominences, *P. K. Raju* 479

Solar spectroscopy:

— Low noise solar and laboratory spectroscopy—II. The region around 6708 Å in the photospheric spectrum and the solar lithium abundance, *J. V. Peach* 40;
Somerville, W. B., The radio-frequency spectrum of H_2^+ 16;

Spectroscopy:

— Notes on applications of Fourier transform spectroscopy to studies of line profiles, *A. H. Cook* ... 141
 — Statistical spectra for stellar photospheric conditions, *C. W. Allen* ... 367

Stars—photometry:

— Narrow band photometry of K and M stars, *D. H. P. Jones* ... 189

Stars—spectra of:

— The temperatures, metal abundance and mass of the disc cepheid π Pavonis, *A. W. Rodgers and R. A. Bell* ... 175
 — Stellar spectra in the cluster Messier 7, *W. Buscombe and P. M. Kennedy* ... 215
 — The analysis of the spectrum of the Large Magellanic Cloud supergiant HD 33579, *A. Przybylski* ... 313
 — Stellar radial velocities from coudé spectrograms, *W. Buscombe and P. M. Kennedy* ... 341
 — Statistical spectra for stellar photospheric conditions, *C. W. Allen* ... 367
Thompson, I. H. and Whitrow, G. J., Time-dependent internal solutions for spherically symmetrical bodies in general relativity—II. Adiabatic radial motions of uniformly dense spheres ... 499

Universe—cosmology:

— Time-dependent internal solutions for spherically symmetrical bodies in general relativity—II. Adiabatic radial motions of uniformly dense spheres, *I. H. Thompson and G. J. Whitrow* ... 499
 — The extension of the number-flux density relation for radio sources to very small flux densities, *G. G. Pooley and M. Ryle* ... 515
Vaucoleurs, A. de, Vaucoleurs, G. de and Freeman, K. C., Photometry, kinematics and dynamics of the Magellanic-type barred spiral galaxy NGC 4027 ... 425
Warner, Brian, Atomic oscillator strengths—I. Neutral silicon ... 1
Warner, Brian, Atomic oscillator strengths—II. Neutral magnesium ... 103
Warner, Brian, Atomic oscillator strengths—III. Alkali-like spectra ... 115
Warner, Brian, Line strengths in two-electron spectra ... 273
Warner, B. and Lambert, D. L., Absorption lines of neutral silicon in the solar spectrum ... 35
Whitrow, G. J. and Thompson, I. H., Time-dependent internal solutions for spherically symmetrical bodies in general relativity—II. Adiabatic radial motions of uniformly dense spheres ... 499
Wilday, R. L., The nocturnal heat sources of the surface of the Moon ... 471
Williams, P. J. S., Collins, R. A., Caswell, J. L. and Holden, D. J., The radio spectra of sources in the Fourth Cambridge Catalogue—III ... 289
Woolley, Sir Richard and Candy, M. P., Perturbations of galactic orbits by irregularities in the gravitational field—I. Motion in the galactic plane ... 231

MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY

CONTAINING

PAPERS PUBLISHED IN THE PERIOD

1968 JULY TO 1968 SEPTEMBER

VOL. 140

Published for the Royal Astronomical Society by
Blackwell Scientific Publications · Oxford and Edinburgh

INDEX

	<small>PAGE</small>
<i>Aron, Jonathan and Silk, Joseph</i> , On the Jean's criterion in relativistic cosmology	331
Astronomical instruments:	
— Minimum deflection supports for small mirrors, <i>G. D. Dew</i>	9
Astronomical unit:	
— A radio method for determining the astronomical unit, <i>D. Williams and R. D. Davies</i>	537
Astrophysics:	
— The abundance of the elements in the solar photosphere—VI. Rubidium, <i>D. L. Lambert and E. A. Mallia</i>	13
— Abundances of sodium, magnesium and calcium in K-type giant stars, <i>D. W. Peat and A. C. Pemberton</i>	21
— Low noise solar and laboratory spectroscopy—III. The Pb I 7229 Å line and the solar lead abundance, <i>J. V. Peach</i>	43
— Atomic oscillator strengths—IV. Transitions of the type s^2-sp and $ss-sp$, <i>Brian Warner</i>	53
— Excitation temperatures of the Wolf-Rayet stars, <i>M. K. V. Bappu and S. M. Chitre</i>	61
— Intermediate coupling line strengths in the $2p-2p_3$ arrays of C I, N II, O III, <i>J. B. Tatum</i>	87
— On meridian circulation, <i>M. Maheswaran</i>	93
— Jeans's type gravitational instability of finite isothermal gas spheres, <i>Shin Yabushita</i>	109
— Determination of aspect and degree of differential rotation, from line profiles in rapidly rotating stars, <i>Thomas R. Stoeckley</i>	121
— Distribution of rotational velocities in Be stars, <i>Thomas R. Stoeckley</i>	141
— Observations of the night sky H α emission line, <i>M. F. Ingham</i>	155
— Magnetic braking by a stellar wind—II. <i>L. Mestel</i>	177
— The abundances of the elements in the solar photosphere—V. The alkaline earths Mg, Ca, Sr, Ba, <i>D. L. Lambert and B. Warner</i>	197
— Mass flow from stellar systems—I. Radial flow from spherical systems, <i>J. Anthony Burke</i>	241
— Perpendicular shocks in a medium containing cosmic rays, <i>P. D. Hudson</i>	255
— On the formation of graphite particles in the atmospheres of Mira variables, <i>N. C. Wickramasinghe</i>	273
— Elementary models for stimulated radio emission from interstellar OH, <i>A. H. Cook</i>	299
— Spin-change in H-C $^+$, H-Si $^+$ and H-Al collisions, <i>Francis J. Smith</i>	341
— The Milne problem in radiative transfer, <i>M. M. R. Williams</i>	403
— Dissociation-ionization fronts in interstellar gas clouds—I. Physical processes, <i>D. A. Mendis</i>	435
— Observations of the polarization of the night sky and a model of the zodiacal cloud normal to the elliptical plane, <i>M. F. Ingham and R. F. Jameson</i>	473
— The calculation of stellar radiative opacity, <i>T. R. Carson, D. F. Mayers and D. W. N. Stibbs</i>	483
<i>Bappu, M. K. V. and Ganesh, K. S.</i> , Excitation temperatures of the Wolf-Rayet stars	71
<i>Batten, Alan H. and Ovenden, Michael W.</i> , The masses of spectroscopic binary stars in the Sixth Catalogue	81
<i>Burke, J. Anthony</i> , Mass flow from stellar systems—I. Radial flow from spherical systems	21
<i>Buscombe, W., Chambliss, C. R. and Kennedy, P. M.</i> , A spectral analysis of the manganese star HD 1909	369
<i>Carson, T. R., Mayers, D. F. and Stibbs, D. W. N.</i> , The calculation of stellar radiative opacity	483
<i>Chambliss, C. R., Buscombe, W. and Kennedy, P. M.</i> , A spectral analysis of the manganese star HD 1909	369
<i>Chitre, S. M. and Shaviv, G.</i> , On the outer convection zone in stars	61
<i>Cook, A. H.</i> , Elementary models for stimulated radio emission from interstellar OH	299
<i>Cowling, T. G.</i> , The axisymmetric dynamo	547
<i>Davies, R. D. and Williams, D.</i> , A radio method for determining the astronomical unit	537
<i>Dew, G. D.</i> , Minimum deflection supports for small mirrors	9
<i>Disney, M. J., McNally, D. and Wright, A. E.</i> , The collapse of interstellar gas clouds—II. An analytical study	319
<i>Dixon, M. E.</i> , Instellar gas dynamics and the motions of young stars	287
<i>Eggleton, Peter P.</i> , The evolution of partially degenerate helium cores	387
<i>Faulkes, M. C.</i> , The stability of Schwarzschild spheres to radial perturbations	445
<i>Faulkner, D. J.</i> , The evolution of helium shell-burning stars	223
<i>Feast, M. W.</i> , The kinematics of planetary nebulae in the Magellanic Clouds	345

Galactic structure and stellar dynamics:

— Interstellar gas dynamics and the motions of young stars, *M. E. Dixon* 287
 — The kinematics of planetary nebulae in the Magellanic Clouds, *M. W. Feast* 345
 — The distribution of OB stars in the Northern Milky Way, *M. E. Sim* 549
Ganesh, K. S. and Bappu, M. K. V., Excitation temperatures of the Wolf-Rayet stars 71
Harrison, E. R., Improved Friedmann models 281
Hudson, P. D., Perpendicular shocks in a medium containing cosmic rays 255
Ingham, M. F., Observations of the night sky H α emission line 155
Ingham, M. F. and Jameson, R. F., Observations of the polarization of the night sky and a model of the zodiacal cloud normal to the ecliptic plane 473

Interstellar matter:

— Jeans's type gravitational instability of finite isothermal gas spheres, *Shin Yabushita* ... 109
 — Perpendicular shocks in a medium containing cosmic rays, *P. D. Hudson* 255
 — Interstellar gas dynamics and the motion of young stars, *M. E. Dixon* 287
 — Elementary models for stimulated radio emission from interstellar OH, *A. H. Cook* ... 299
 — The collapse of interstellar gas clouds—II. An analytical study, *M. J. Disney, D. McNally and A. E. Wright* 319
 — Dissociation-ionization fronts in interstellar gas clouds—I. Physical processes, *D. A. Mendis* 435
 — Observations of interstellar reddening—IV. Results for the region in Cepheus, *K. Nandy* 551
Jameson, R. F. and Ingham, M. F., Observations of the polarization of the night sky and a model of the zodiacal cloud normal to the ecliptic plane 473
Jones, D. H. P., The brightest variable in the globular cluster ω Centauri 265
Kennedy, P. M., Buscombe, W. and Chambliss, C. R., A spectral analysis of the manganese star HD 1909 369
Kundu, M. R. and Velusamy, T., Radio spectra of the nebula IC443 173
Lambert, D. L. and Mallia, E. A., The abundances of the elements in the solar photosphere—VI. Rubidium 13
Lambert, D. L. and Warner, B., The abundances of the elements in the solar photosphere—V. The alkaline earths Mg, Ca, Sr, Ba 197

Magellanic Clouds:

— The kinematics of planetary nebulae in the Magellanic Clouds, *M. W. Feast* 345
Maheswaran, M., On meridian circulation 93
Mallia, E. A. and Lambert, D. L., The abundances of the elements in the solar photosphere—VI. Rubidium 13
Mayers, D. F., Carson, T. R. and Stibbs, D. W. N., The calculation of stellar radiative opacity ... 483
McIntosh, C. B. G., Relativistic cosmological models with both radiation and matter ... 461
McNally, D., Disney, M. J. and Wright, A. E., The collapse of interstellar gas clouds—II. analytical study 319
Mendis, D. A., Dissociation-ionization fronts in interstellar gas clouds—I. Physical processes ... 435
Mestel, L., Magnetic braking by a stellar wind—II 177
Nandy, K., Observations of interstellar reddening—IV. Results for the region in Cepheus ... 551
Ovenden, Michael W. and Batten, Alan H., The masses of spectroscopic binary stars in the Sixth Catalogue 81
Peach, J. V., Low noise solar and laboratory spectroscopy—III. The Pb I 7229 Å line and the solar lead abundance 43
Peat, D. W. and Pemberton, A. C., Abundances of sodium, magnesium and calcium in K-type giant stars 21
Pemberton, A. C. and Peat D. W., Abundances of sodium, magnesium and calcium in K-type giant stars 21

Radio astronomy:

— Radio spectra of the nebula IC443, *M. R. Kundu and T. Velusamy* 173
 — A radio method for determining the astronomical unit, *D. Williams and R. D. Davies* ... 537
Shaviv, G. and Chitre, S. M., On the outer convection zone in stars 61
Silk, Joseph and Arons, Jonathan, On the Jeans criterion in relativistic cosmology 331
Sim, M. E., The distribution of OB stars in the Northern Milky Way 549
Singh, Mannohan, Effect of central condensation on the pulsation characteristics 235
Singh, D. N. and Singh, K. P., A plane symmetric cosmological model 453
Singh, K. P. and Singh, D. N., A plane symmetric cosmological model 453
Smith, Francis J., Spin-change in H-C $^+$, H-Si $^+$ and H-Al collisions 341
Smith, Lindsey F., Absolute magnitudes and intrinsic colours of Wolf-Rayet stars 409

Solar spectroscopy:

— The abundances of the elements in the solar photosphere—VI. Rubidium, *D. L. Lambert and E. A. Mallia* 13
 — Low noise solar solar and laboratory spectroscopy—III. The Pb I 7229 Å line and the solar lead abundance, *J. V. Peach* 43
 — The abundances of the elements in the solar photosphere—V. The alkaline earths, Mg, Ca, Sr, Ba, *D. L. Lambert and B. Warner* 197

Spectroscopy:

— Broadening of lines from ionized nitrogen, carbon and oxygen, *P. Subrahmaniam* ... 1
 — Atomic oscillator strengths—IV. Transitions of the type s^2-sp and $ss-sp$, *Brian Warner* ... 53
 — Intermediate coupling line strengths in the $2p-2p_{3s}$ arrays of C I, N II, O III, *J. B. Tatum* ... 87

Stars—binary:

— The masses of spectroscopic binary stars in the Sixth Catalogue, *Alan H. Batten and Michael W. Ovenden* ... 81

Stars—photometry:

— The brightest variable in the globular cluster ω Centauri, *D. H. P. Jones* ... 265
 — Absolute magnitudes and intrinsic colours of Wolf-Rayet stars, *Lindsey F. Smith* ... 499

Stars—spectra of:

— Abundances of sodium, magnesium and calcium in K-type giant stars, *D. W. Peat and A. C. Pemberton* ... 21
 — Determination of aspect and degree of differential rotation, from line profiles in rapidly rotating stars, *Thomas R. Stoeckley* ... 121
 — Absorption line strengths in rotating stars, *Thomas R. Stoeckley* ... 149
 — A spectral analysis of the manganese star HD 1909, *W. Buscombe, C. R. Chambliss and P. M. Kennedy* ... 369

Stars—structure and evolution of:

— On meridian circulation, *M. Maheswaran* ... 93
 — Magnetic braking by a stellar wing—II, *L. Mestel* ... 177
 — The evolution of helium shell-burning stars, *D. J. Faulkner* ... 223
 — Effect of central condensation on the pulsation characteristics, *Manmohan Singh* ... 235
 — Mass flow from stellar systems—I. Radial flow from spherical systems, *J. Anthony Burke* ... 241
 — The evolution of partially degenerate helium cores, *Peter P. Eggleton* ... 387
 — The calculation of stellar radiative opacity, *T. R. Carson, D. F. Mayers and D. W. N. Stibbs* ... 483
 — The axisymmetric dynamo, *T. G. Cowling* ... 547
 — *Stibbs, D. W. N., Carson, R. T. and Mayers, D. F.*, The calculation of stellar radiative opacity ... 483
 — *Stoeckley, Thomas R.*, Determination of aspect and degree of differential rotation, from line profiles in rapidly rotating stars ... 121
 — *Stoeckley, Thomas R.*, Distribution of rotational velocities in Be stars ... 141
 — *Stoeckley, Thomas R.*, Absorption line strengths in rotating stars ... 149
 — *Subrahmaniam, P.*, Broadening of lines from ionized nitrogen, carbon and oxygen ... 1
 — *Tatum, J. B.*, Intermediate coupling line strengths in the $2p-2p_{3s}$ arrays of C I, N II, O III ... 87

Universe—cosmology and relativity:

— Improved Friedmann models, *E. R. Harrison* ... 281
 — On the Jean's criterion in relativistic cosmology, *Jonathan Arons and Joseph Silk* ... 331
 — The stability of Schwarzschild spheres to radial perturbations, *M. C. Faulkes* ... 445
 — A plane symmetric cosmological model, *K. P. Singh and D. N. Singh* ... 453
 — Relativistic cosmological models with both radiation and matter, *C. B. G. McIntosh* ... 461
 — *Velusamy, T. and Kundu, M. R.*, Radio spectra of the nebula IC443 ... 173
 — *Warner, Brian*, Atomic oscillator strengths—IV. Transitions of the type s^2-sp and $ss-sp$... 53
 — *Warner, B. and Lambert, D. L.*, The abundances of the elements in the solar photosphere—V. The alkaline earths Mg, Ca, Sr, Ba ... 197
 — *Wickramasinghe, N. C.*, On the formation of graphite particles in the atmospheres of Mira variables ... 273
 — *Williams, D. and Davies, R. D.*, A radio method for determining the astronomical unit ... 537
 — *Williams, M. M. R.*, The Milne problem in radiative transfer ... 403
 — *Wright, A. E., Disney, M. J. and McNally, D.*, The collapse of interstellar gas clouds—II. An analytical study ... 319
 — *Yabushita, Shin*, Jeans's type gravitational instability of finite isothermal gas spheres ... 109

Zodiacal light:

— Observations of the polarization of the night sky and a model of the zodiacal cloud normal to the ecliptic plane, *M. F. Ingham and R. F. Jameson* ... 473

INDEX
MONTHLY NOTICES

OF THE
ROYAL ASTRONOMICAL SOCIETY

CONTAINING

PAPERS PUBLISHED IN THE PERIOD
1968 OCTOBER TO 1968 DECEMBER

VOL. 141

Published for the Royal Astronomical Society by
Blackwell Scientific Publications · Oxford and Edinburgh

INDEX

	PAGE
Astrophysics:	
— Gravithermodynamics—I. Phenomenological equilibrium theory and zero time fluctuations, <i>William C. Saslaw</i> ...	1
— Solution of radiative transfer problems using the invariant S_n method, <i>I. P. Grant and G. E. Hunt</i> ...	27
— The blending effect in the measurement of spectroscopic binary spectra, <i>J. B. Tatum</i> ...	43
— A critique of the hydrogenic approximation in the calculation of stellar opacity, <i>T. R. Carson and H. M. Hollingsworth</i> ...	77
— The frequency of Cepheid binaries, <i>T. Lloyd Evans</i> ...	109
— Photographic measures of the polarization of starlight in η and χ Persei, <i>N. M. Pratt</i> ...	143
— The influence of inhibition of convection on pre-main sequence stellar evolution, <i>D. L. Mori</i> ...	165
— The atmosphere of η Aquilae, <i>J. A. Dawe</i> ...	185
— Expanding atmospheres in OB supergiants—I, <i>J. B. Hutchings</i> ...	219
— On the theory of the structure of Mars, <i>R. A. Lyttleton</i> ...	251
— The origin of the peculiar A stars, <i>B. N. G. Guthrie</i> ...	271
— Atomic oscillator strengths—V. C IV, N VI and Si IV, <i>Brian Warner</i> ...	273
— The dissociation equilibrium of H^- in stellar atmospheres, <i>D. L. Lambert and B. E. J. Page</i> ...	299
— Expanding atmospheres in OB supergiants—II, <i>J. B. Hutchings</i> ...	329
— Dissociation-ionization fronts in interstellar gas clouds—II. The structure and propagation of R -type fronts, <i>D. A. Mendis</i> ...	409
— Hönl-London factors for $^3\Phi - ^3\Delta$ systems, <i>J. B. Tatum</i> ...	459
— Correlation between local solar magnetic fields and central intensities in some Fraunhofer lines, <i>H. von Klüber</i> ...	469
— Non-coherent scattering—IV. Doppler redistribution functions in moving atmospheres, <i>D. G. Hummer</i> ...	479
<i>Cameron, M. J. and Glanfield, J. R.</i> , Fan beam observations of bright galaxies at 408 MHz ...	145
<i>Candy, M. P. and Woolley, Sir Richard</i> , Perturbations of galactic orbits by irregularities in the gravitational field—II ...	277
<i>Carson, T. R. and Hollingsworth, H. M.</i> , A critique of the hydrogenic approximation in the calculation of stellar opacity ...	77
Celestial mechanics and stellar dynamics:	
— Perturbations of galactic orbits by irregularities in the gravitational field—II, <i>Sir Richard Woolley and M. P. Candy</i> ...	277
— On the origin of commensurabilities in the solar system—I. The tidal hypothesis, <i>S. F. Dermott</i> ...	349
— On the origin of commensurabilities in the solar system—II. The orbital period relation, <i>S. F. Dermott</i> ...	363
<i>Dermott, S. F.</i> , On the origin of commensurabilities in the solar system—I. The tidal hypothesis ...	349
<i>Dermott, S. F.</i> , On the origin of commensurabilities in the solar system—II. The orbital period relation ...	363
Earth:	
— The variation of latitude, <i>Sir Harold Jeffreys</i> ...	255
<i>Evans, T. Lloyd</i> , The frequency of Cepheid binaries ...	109
Extragalactic nebulae:	
— Fan beam observations of bright galaxies at 408 MHz, <i>M. J. Cameron and J. R. Glanfield</i> ...	145
Galactic structure:	
— The distribution of Wolf-Rayet stars in the Galaxy, <i>Lindsey F. Smith</i> ...	317
<i>Glanfield, J. R. and Cameron, M. J.</i> , Fan beam observations of bright galaxies at 408 MHz ...	145
<i>Grant, I. P. and Hunt, G. E.</i> , Solution of radiative transfer problems using the invariant S_n method ...	27
<i>Guthrie, B. N. G.</i> , The origin of the peculiar A stars ...	269
<i>Halperin, W. and Higgs, L. A.</i> , Further observations of the γ -Cygny radio source ...	209
<i>Harrison, E. R.</i> , On the origin of galaxies ...	397
<i>Higgs, L. A. and Halperin, W.</i> , Further observations of the γ -Cygny radio source ...	209

Historical observations:

— Early Japanese astronomical observations, <i>F. R. Stephenson</i>	69
<i>Holden, D. J.</i> , Some extended radio sources in Monoceros	57
<i>Hollingsworth, H. M. and Carson, T. R.</i> , A critique of the hydrogenic approximation in the calculation of stellar opacity	77
<i>Hummer, D. G.</i> , Non-coherent scattering—IV. Doppler redistribution functions in moving atmospheres	479
<i>Hunt, G. E. and Grant, I. P.</i> , Solution of radiative transfer problems using the invariant S_n method	27
<i>Hutchings, J. B.</i> , Expanding atmospheres in OB supergiants—I	219
<i>Hutchings, J. B.</i> , Expanding atmospheres in OB supergiants—II	329

Interstellar matter:

— Dissociation-ionization fronts in interstellar gas clouds—II. The structure and propagation of R-type gas fronts, <i>D. A. Mendis</i>	409
Jeffreys, Sir Harold, The variation of latitude	255
Klüber, H. von, Correlation between local solar magnetic fields and central intensities in some Fraunhofer lines	469
Lambert, D. L. and Pagel, B. E. J., The dissociation equilibrium of H ₂ in stellar atmospheres	299
Large, M. I. and Murdoch, H. S., Revised spectra for 74 radio sources ...	377
Lyttleton, R. A., On the theory of the structure of Mars ...	251

Mars'

— On the theory of the structure of Mars, <i>R. A. Lyttleton</i>	251
<i>Mendis, D. A.</i> , Dissociation-ionization fronts in interstellar gas clouds—II. The structure and propagation of R-type fronts	409
<i>Mohan, C. and Prasad, C.</i> , Pulsational properties of a massive star in the helium burning phase—I	389
<i>Moss, D. L.</i> , The influence of inhibition of convection on pre-main sequence stellar evolution	165
<i>Murdoch, H. S. and Large, M. I.</i> , Revised spectra for 74 radio sources ...	377
<i>Pagel, B. E. J. and Lambert, D. L.</i> , The dissociation equilibrium of H ⁻ in stellar atmospheres	299
<i>Prasad, C. and Mohan, C.</i> , Pulsational properties of a massive star in the helium burning phase—I	389
<i>Pratt, N. M.</i> , Photographic measures of the polarization of starlight in h and x Persei	143

Radio astronomy:

— Some extended radio sources in Monoceros, <i>D. J. Holden</i>	...	...	...	...	57
— Fan beam observations of bright galaxies at 408 MHz, <i>M. J. Cameron and J. R. Glanfield</i>	...	...	...	...	145
— Further observations of the γ -Cygni radio source, <i>L. A. Higgs and W. Halperin</i>	...	...	...	...	209
— Revised spectra for 74 radio sources, <i>H. S. Murdoch and M. I. Large</i>	...	...	...	...	377
<i>Rowan-Robinson, M.</i> , On cosmological models with an antipole	...	...	...	...	443
<i>Saslaw, William C.</i> , Gravithermodynamics—I. Phenomenological equilibrium theory and zero time fluctuations	...	...	...	...	1
<i>Saunders, P. T.</i> , Observations in homogeneous model universes	...	...	...	...	427
<i>Smith, Lindsey F.</i> , The distribution of Wolf-Rayet stars in the Galaxy	...	...	...	...	317

Solar physics:

Solar system:

— On the theory of the structure of Mars, <i>R. A. Lyttleton</i>	251
— On the origin of commensurabilities in the solar system—I. The tidal hypothesis, <i>S. F. Dermott</i>	349
— On the origin of commensurabilities in the solar system—II. The orbital period relation, <i>S. F. Dermott</i>	362

Spectroscopy:

Stars—atmospheres:

Stars—photometry:

Photographic measures of the polarization of starlight in η and χ Persei, N. M. Pratt 143

Stars—structure of:

Stars—variable:

— The frequency of Cepheid binaries, *T. Lloyd Evans* 100

Stars—Wolf-Rayet:

— The distribution of Wolf-Rayet stars in the Galaxy, <i>Lindsey F. Smith</i>	317
<i>Stephenson, F. R.</i> , Early Japanese astronomical observations	69
<i>Tatum, J. B.</i> , The blending effect in the measurement of spectroscopic binary spectra	43
<i>Tatum, J. B.</i> , Hönl-London factors for $^3\Phi - ^3\Delta$ systems	459

Universe—cosmology and relativity:

